REMARKS:

Claims 41, 43, 58, and 66 stand rejected on the ground of obviousness-type double patenting over claim 1 of U.S. Patent 6,714,936. In response, a Terminal Disclaimer has been filed. The Examiner has indicated in the final Office Action that approval of this Disclaimer is pending.

Claims 49 and 57 have been objected to as being informal. In response, Applicant respectfully contends that claim 49 as amended and claim 57 are unambiguous, formal, and satisfy all applicable statutory and regulatory requirements.

The Examiner has objected that the following phrase of claim 49 is indefinite because it recites an optional limitation: "designating one of the nodes as a point of view, linking a number of the nodes directly to the (changed by the present amendment to "designating one of the nodes, linked by at least one link to at least one other one of the nodes, as a") point of view, and calculating individual link distances from each of at least some of the nodes to the point of view, thereby determining a hierarchical network of the nodes which is amenable to visualization." Applicant is uncertain which step the Examiner regards as optional, but assumes the Examiner regards a "visualization" step as being optional.

Claim 49 recites the steps that Applicant regards as his invention. It recites no optional step. In particular, the recited "designating" and "calculating" steps are neither optional nor ambiguous. The recited limitation "thereby determining a hierarchical network of the nodes which is amenable to visualization" is also an explicit, unambiguous, and mandatory (not optional) limitation which defines the type of "hierarchical network" of nodes actually determined by the recited steps. Applicant respectfully contends that there is no statutory or regulatory requirement that the claim be amended to recite affirmatively any additional step (e.g., a step of visualization or displaying a representation of the nodes, thereby visualizing the displayed nodes), and that the claim as currently drafted recites only unambiguous and mandatory (not optional) limitations.

Examiner has objected that the following step of claim 57 is indefinite because it recites an optional limitation: "implementing a user interface which

displays representations …, wherein the user interface implements a simple command and query syntax which is amenable to a voice interface." Applicant is uncertain which step in the claim the Examiner regards as optional, but assumes the Examiner regards a step of implementing the recited user interface to be (or include) a voice interface as being optional.

Claim 57 recites the steps that Applicant regards as his invention. It recites no optional step. In particular, the "implementing" step is not optional. The limitation that "the user interface implements a simple command and query syntax which is amenable to a voice interface" is also an explicit, unambiguous, and mandatory (not optional) limitation which defines the type of user interface required to be implemented (i.e., a user interface having a specific type of command and query syntax).

Claims 41, 58, and 63 stand rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. In response, claims 41, 58, and 63 are hereby amended. For the following reasons, Applicant respectfully contends that claims 41, 58, and 63 as amended are directed to statutory subject matter.

The Examiner contends that the rejected claims are non-statutory because they do not produce a "useful, concrete and tangible result" and recite only "an abstraction." Applicant contends that the claims as amended are clearly directed to statutory subject matter under the standard set forth by the U.S. Court of Appeals for the Federal Circuit in In re Bilski, 88 USPQ2d 1385 (Fed. Cir. 2008).

Each claim rejected under 35 U.S.C. 101 is directed to a method, which is a synonym for a "process" as recited in 35 U.S.C. 101 and is one of the categories of patentable subject matter enumerated in 35 U.S.C. 101. Each rejected claim is clearly directed to statutory subject matter, since each is directed to a method (a "process" as recited in 35 U.S.C. 101) that not only produces a useful, concrete and tangible result, but includes a step of operating an apparatus (a "computer").

Claims 41-44, 60-61, and 66 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,154,750 ("Roberge"). In response, Applicant contends that the rejected claims as hereby amended are patentable over Roberge for the following reasons.

Roberge fails to teach or suggest a method for creating a network of nodes (indicative of computer-readable data) including the step of structuring data as (or establishing) a set of (or associating) linked nodes, where the linked nodes are structured such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations, viewed from said point of view (as recited in claim 41, 60 or 66) or the steps of structuring data as a set of linked nodes (where the set of linked nodes is structured such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations), designating one of the nodes as the point of view, and displaying said representations of the nodes as said sea of node representations viewed from said point of view (as recited in claim 43).

Roberge teaches a database structured as a hierarchy of nodes as shown in Roberge's Fig. 1, and teaches that representations of nodes ("buttons") can be displayed as shown in Figs. 7-15. However, there is no teaching or suggestion in Roberge to structure linked nodes such that one of a set of the linked nodes can be designated as a point of view, and representations of the nodes in the set can be displayed as a sea of node representations viewed from the point of view (as recited in claims 41, 43, 60, and 66, as amended). Applicant respectfully disagrees with the Examiner's assertion that Roberge's teaching with respect to his Figs. 4, 7, and 8 amounts to a teaching to display representations of nodes including a "Cardiac" node, viewed "from" the Cardiac node or "from" any other one of the nodes.

Roberge fails to teach or suggest (e.g., with reference to Figs. 4, 7, and 8 as cited by the Examiner or elsewhere) display of nodes (e.g., a "sea" of nodes) as viewed "from" one of the nodes that has been designated as a point of view, or the step of structuring linked nodes such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations viewed from said point of view. Even assuming for the sake of argument that an element of Roberge's Fig. 4 or 7 is a node that has

been designated as a point of view, Roberge neither teaches nor suggests that representations of nodes can or should be displayed as a sea of node representations viewed from such point of view, nor does it teach how to structure linked nodes such that when one is designated as a point of view, representations of the nodes can be displayed as a sea of node representations viewed from said point of view. Elements 42 and 44 of Roberge's Fig. 4 and elements 72-74 of Roberge's Fig. 7 are simply two-dimensional representations of echocardigraphic reports which appear to be arranged side-by-side in a plane (and viewed by an observer above the plane). Even if the elements of Roberge's Fig. 4 and 7-15 are considered for the sake of argument to be representations of nodes, such elements are not displayed from the point of view of any of the elements (i.e., from the point of view of any node).

All claims that depend directly or indirectly from claim 41, 43, 60, or 66 are patentable over Roberge for the above-discussed reasons that independent claims 41, 43, 60, or 66 are patentable over Roberge.

Claim 44 is also patentable over Roberge because Roberge fails to teach or suggest displaying representations of nodes as a sea of node representations including virtual reality renderings as recited in claim 44. Display of virtual reality renderings (of representations of nodes) requires mapping of the nodes to simulated real-world objects and display of at least a subset of the simulated real-world objects. In contrast, Roberge (in the cited passages at cols. 2 and 3 and elsewhere) teaches only user interaction with a program that displays node representations, without any suggestion to display a simulated real-world object to which any node has been mapped and without any teaching of how to display a simulated real-world object to which a node has been mapped.

Claim 61 is also patentable over Roberge because Roberge fails to teach or suggest modulating a connection strength of links that are identified by a link identification, thereby sensitizing or desensitizing said links to further operations as recited in claim 61. Roberge (in the cited passages at cols. 5 and 6 and elsewhere) teaches nodes that include multiple attributes (e.g., results and events that are associated with dates) and display of representations of the nodes or attributes. A date stamp (or other attribute) of one of Roberge's nodes is not and does not determine a connection strength of a set of links identified by a

single link identification, as recited. It cannot reasonably be contended that Roberge's noted teaching amounts to a teaching to modulate a "connection strength" of links that are identified by a link identification as claimed.

Claims 49-57 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,751,931 ("Cox"). In response, claim 49 is amended, claims 54-56 are rewritten in independent form to include the limitations of amended claim 49, new claims 79 and 80 are added, and Applicant contends for the following reasons that the rejected claims as hereby amended (and new claims 79 and 80) are patentable over Cox.

Claim 49 is a method for interactively exploring, accessing, and visualizing information in a highly connected network of nodes, that recites steps of designating one of the nodes (of a set of linked nodes) as a point of view, and calculating individual link distances from each of at least some of the nodes to the point of view, thereby determining a hierarchical network of the nodes which is amenable to visualization. Claim 79 is a method for interactively exploring, accessing, and visualizing information in a highly connected network of nodes, that recites steps of designating one of the nodes (of a set of linked nodes) as a point of view, and calculating individual link distances from each of at least some of the nodes to the point of view, thereby determining a hierarchical network of the nodes which is amenable to visualization, and thereafter, designating another one of the nodes as a new point of view, and calculating individual link distances from each of at least some of the nodes to the new point of view, thereby changing the hierarchical network.

As explained on page 10 of the specification of the present application (in the "Definitions" section), the expression "link distance" is used in the present application to denote the minimum number of links between two nodes of a set of linked nodes.

Cox discloses a method for displaying "three dimensional" and other representations of data (e.g., geographical data) on the screen of a computer monitor. For example, Cox discloses displaying a two dimensional map (which represents the earth surface) with paths between points on the map, as in Cox's Figs. 10A, 10B, 10C, and 21. Even if one assumes for the sake of argument that the point of view from which the display of Cox's Fig. 8, 10A, 10B, 10C, or 21 appears to be viewed is a node of the type recited in claim 49, Cox fails to teach

calculating individual link distances between the point of view and each of a number of other nodes (i.e., minimum number of links between the point of view and each of the other nodes).

Cox (at col. 5, lines 15-17, col. 8, lines 18-31, col. 9, lines 19-32, col. 12, lines 52-59, col. 14, lines 53-59, or with reference to Fig. 10A, 10B, 10C, or 21 as cited by the Examiner, or elsewhere) apparently fails to disclose calculation of individual link distances from each of at least some of the nodes (of a set of linked nodes) to one of the nodes that has been designated as a point of view. The "link attributes" and "weighted link distance" mentioned in Cox (e.g., at col. 9, lines 19-25, and col., 12, lines 52-59) are apparently attributes of a single link between two nodes (e.g., a number of telephone calls made between the nodes). Cox's "weighted link distance" for a first node (representing a telephone number) displayed with other nodes representing foreign countries, is apparently not a link distance (i.e., minimum number of links between Cox's first node and any of Cox's other nodes) as recited in claim 49. Rather, Cox's "weighted link distance" is apparently determined as follows: (a) an arbitrary trial location is determined for displaying Cox's first node; (b) a distance is determined between the location of the first node and the location of each displayed node of each foreign country containing another telephone called by the telephone associated with the first node (the "first" telephone), (c) a weighted sum of such distances is determined (by assigning a weight indicative of the number of calls made by the first telephone to each country); (d) a different trial location is chosen for displaying Cox's first node and steps (b) and (c) are repeated for this new location; and (e) the trial location (for displaying Cox's first node) having the smallest weighted sum is chosen as the best location for displaying Cox's first node. Cox's method does not determine the number (or minimum number) of links between any pair of Cox's nodes. Rather, Cox apparently assumes that there is one and only one link between Cox's first node and each node to be displayed with a determined distance relative to Cox's first node, where such single link indicates that at least one international call has been made from a telephone associated with the first node to a telephone associated with the other node.

There is no teaching or suggestion determinable from Cox to designate a node (of a set of linked nodes) as a point of view, and to calculate individual link distances (i.e., minimum numbers of links between nodes) from each of at least some of the nodes to the point of view, thereby determining a hierarchical

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network of the nodes amenable to visualization (as recited in claim 49). Nor is there any teaching or suggestion determinable from Cox to calculate individual link distances (i.e., minimum numbers of links between nodes) from each of at least some of the nodes to a node that has been designated as a point of view, designating another one of the nodes as a new point of view, and calculating individual link distances from each of at least some of the nodes to the new point of view thereby changing the hierarchical network (as recited in claim 79).

All claims that depend directly or indirectly from independent claim 49 are patentable over Cox for the above-discussed reasons that amended claim 49 is patentable over Cox.

The cited passage of Cox (col. 14, lines 53-59) does not teach adding or deleting a link (between nodes) as recited in claim 51, or calculating link distances from nodes to a point of view, designating another one of the nodes as a new point of view, and calculating link distances from each of at least some of the nodes to the new point of view (as recited in claim 79). Instead, this cited passage teaches selecting or deselecting nodes or links in the sense of causing the selected nodes or links to be displayed or causing the deselected nodes or links not to be displayed.

Claim 54 is patentable over Cox because Cox fails to teach or suggest structuring linked nodes such that representations of the nodes can be displayed as a sea of node representations including virtual reality renderings as recited in claim 54. Display of virtual reality renderings (of representations of nodes) requires mapping of the nodes to simulated real-world objects and display of at least a subset of the simulated real-world objects. In contrast, Cox (in the cited passage at col. 11 and elsewhere) teaches user interaction with a program that displays node representations, without any suggestion to display a simulated real-world object to which any node has been mapped and without any teaching of how to display a simulated real-world object to which a node has been mapped.

Claim 55 is patentable over Cox because Cox fails to teach or suggest calculating individual link distances between nodes of a set of linked nodes structured such that representations of the nodes can be displayed as a sea of node representations, wherein each of the nodes has a node type, each of the

link distances is determined by a function of the number of links between a pair of the nodes and the node type of each node of said pair as recited in claim 55. In contrast, Cox (in the cited passages at cols. 10 and 11 and elsewhere) teaches that a link between nodes can have a "link attribute" (e.g., if the nodes are countries, a "link attribute" may be an amount of network traffic between two countries in a defined time interval, as described at col. 6, lines 1-18 of Cox) and representations of the nodes can be displayed with a displayed representation of a link (and a "link attribute" of the link) between the node representations. Each pair of Cox's nodes has one link between them, and thus has a link distance (i.e., minimum number of links between two nodes) of one, regardless of the link attribute of the link. Cox does not teach or suggest calculating an individual link distance between a pair of nodes (i.e., minimum number of links between the nodes) that is determined by a function of the number of links between the pair of nodes and the node type of each node of the pair as recited in claim 55.

Claim 56 is patentable over Cox because Cox fails to teach or suggest implementing a user interface which displays representations of nodes, where the user interface allows emulation of application programs by linking appropriate ones of the nodes, as recited in claim 56. In contrast, Cox (in the cited passage at col. 4 and elsewhere) teaches using a pointing device (e.g., a mouse) to interact with a display of node and link representations; not a user interface that allows <u>linking</u> appropriate ones of the nodes of a highly connected network of nodes to emulate an application program as recited in claim 56.

Claims 58-59 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,546,529 ("Bowers"). Applicant contends for the following reasons that these claims as hereby amended are patentable over Bowers.

Claim 58 recites a method including a step of structuring computer-readable data as a set of linked nodes. The set of linked nodes is structured such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations, viewed from said point of view.

Bowers teaches displaying node representations ("NRs") with a tree structure as shown in Bowers' Figs. 2a and 2b. The Fig. 2b display differs from

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that of Fig. 2a in that the Fig. 2b display is distorted by projecting the Fig. 2a NRs on rectangular panel 204 and trapezoidal panels 205 and 206. Thus, the Fig. 2b display appears as if some NRs are displayed on a center "front" panel 204 and others are displayed on panels 205 and 206 which are folded back from the front panel. The NRs are displayed in columns with a "top level" NR in the leftmost column (displayed in center panel 204), the next level (below the top level) NRs in the next column to the right, and so on. Unless only a single NR is displayed, two or more NRs are always displayed in center panel 204. At col. 8, lines 32-38, Bowers teaches scrolling NRs across panels 204-206 to bring a selected NR (and each other NR displayed in the same row as the selected NR) into the center panel (e.g., panel 204 of Fig. 2b).

Even if one assumes for the sake of argument that selection of one of Bowers' nodes (as taught at Bowers' col. 8, lines 20-37) amounts to designation of the node as a point of view, Bowers fails to teach or suggest (including with reference to Figs. 2a, 2b, and 6, or at col. 8, lines 14-42, cited in the Office Action) how to structure data as a set of linked nodes such that that when one of the nodes (e.g., the document node of col. 8, lines 32-37) is designated as a point of view, representations of the nodes can be displayed as a sea of NRs viewed from the point of view. Nor does Bowers teach that it would be desirable to structure data in such a manner. Instead, Bowers teaches display of the same set of NRs when any of the nodes represented by any of the NRs in the center panel of the display has been selected. The center panel of each such display includes at least one NR that is not viewed from the point of view of the selected node.

Thus, claim 58 and claim 59 which depends therefrom are patentable over Bowers.

Claim 59 is also patentable over Bowers because Bowers fails to teach or suggest structuring computer-readable data as a set of linked nodes, wherein each of the nodes includes at least one link to another one of the nodes, and maintaining information specific to each of the nodes, including a magnitude and connection strength of a link between each of the nodes and at least one other one of the nodes, as recited in claim 59. In contrast, Bowers (in the cited passages at col. 7 and cols. 8 and 9, and elsewhere) teaches maintaining "preferences" that are specific to nodes, where such "preferences" are user-specified indices by which the nodes can be referenced. There is no suggestion

determinable from Bowers to maintain a connection strength of a link between each node of a set of linked nodes and at least one other one of the nodes.

Claim 62 stands rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,295,261 ("Simonetti").

Claim 62 recites a method including a step of structuring computer-readable data as a set of linked nodes, wherein the set of linked nodes is structured such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations, viewed from said point of view.

Simonetti teaches a database and teaches that representations of nodes can be displayed with a tree structure as shown in Figs. 2C and 3A. However, there is no teaching or suggestion in Simonetti to designate one of the nodes as a point of view, or that representations of the nodes can or should be displayed as a sea of node representations viewed from the point of view (as recited in claim 62).

While Simonetti does teach mapping of database entries to nodes and linking of parent and child nodes, Simonetti teaches only display of representations (which have a tree structure) of a specific subset of the database contents; not display of representations of the nodes as a sea of node representations viewed from one of the nodes that has been designated as a point of view. In the cited passages at col. 4, lines 6-24, and col. 2, lines 40-57, Simonetti teaches a hierarchical database including nodes and links between them; not structuring the database such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations, viewed from said point of view. A teaching to display a tree structure representing nodes of a hierarchical database and links between them does not amount to a teaching to structure the database such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations viewed from said point of view. When viewing a tree structure of the type disclosed in Simonetti (e.g., that of Simonetti's Fig. 2C, 3A, 3B, or 3C), none of the node representations in the tree

is a "point of view" and none of the node representations is displayed as viewed from such a point of view.

Simonetti fails to teach (e.g., with reference to Figs. 3A, 3B, and 3C as cited by the Examiner, or elsewhere) display of nodes (e.g., a "sea" of nodes) as viewed from one of the nodes that has been designated as a point of view. Even assuming for the sake of argument that an element of Simonetti's Fig. 3A (or 2A or 3C) is a node that has been designated as a point of view, Simonetti neither teaches nor suggests that representations of nodes can or should be displayed as a sea of node representations viewed from such point of view. Nodes 51-54 of Simonetti's Fig. 3A (or 2C or 3C) appear to be arranged side-by-side in a plane. Even if the elements of Simonetti's Figs. 2C, 3A, and 3C are considered to be representations of nodes, such elements are not displayed from the point of view of any of the elements (i.e., from the point of view of any node).

Thus, claim 62 is patentable over Simonetti.

Claims 63-65 and 76-78 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,336,123 ("Inoue"). Applicant contends for the following reasons that these claims as hereby amended are patentable over Inoue.

Each of claims 63 and 76 recites a method including a step of structuring computer-readable data as a set of linked nodes, wherein the set of linked nodes is structured such that when one of the nodes is designated as a point of view, representations of the nodes can be displayed as a sea of node representations, viewed from said point of view.

Inoue teaches a database and teaches that representations of nodes can be displayed with a tree structure as shown in Figs. 22 and 24. However, there is no teaching or suggestion in Inoue to designate any one of the nodes as a point of view, or that representations of the nodes can or should be displayed as a sea of node representations viewed from the point of view (as recited in claim 63 or 76). The cited teaching at col. 14, lines 50-53, of Inoue pertains to selecting a node as a child node; not designated a node as a point of view and

displaying representations of nodes viewed from such point of view. The cited teaching at col. 18, lines 18-41 (with reference to Fig. 22), of Inoue pertains to displaying a tree structure representing nodes including a parent node and three child nodes; not designating the parent node (or any other node) as a point of view and displaying representations of nodes viewed <u>from</u> such point of view.

Inoue fails to teach (e.g., with reference to Figs. 22 and 24 as cited by the Examiner, or elsewhere) display of nodes (e.g., a "sea" of nodes) as viewed from one of the nodes that has been designated as a point of view. Even assuming for the sake of argument that an element of Inoue's Fig. 22 or 24 is a node that has been designated as a point of view, Inoue neither teaches nor suggests that representations of nodes can or should be displayed as a sea of node representations <u>viewed from such point of view</u>. The nodes of Inoue's Figs. 22 and 24 appear to be arranged side-by-side in a plane (and viewed by an observer above the plane). Even if the elements of Inoue's Figs. 22 and 24 are considered to be representations of nodes, such elements are not displayed from the point of view of any of the elements (i.e., from the point of view of any node).

Thus claims 63 and 76 and all claims that depend directly or indirectly therefrom are patentable over Inoue.

Reconsideration and allowance of the claims as amended is respectfully requested.

Respectfully submitted,

GIRARD & EQUITZ LLP

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                                Alfred A. Equitz
                                Reg. No. 30,922

                                Attorneys for Applicant(s)

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